

Natural vs Synthetic

Life vs Death

Truth vs The Lie

by Richard P. Murray, D.C., P.A.



ou won't find his name in "Who's Who" or cited as an authority in any establishment scientific publication. Encyclopedias that herald and/or memorialize pirates, terrorists, murderers and sundry other criminals or cad, never publish his name or spectacular accomplishments. WHY??? Because he spoke the truth about matters out of harmony with those who were living off of the propagandized public, those making fortunes manufacturing and selling counterfeit food supplements and those dumping chemicalized, refined and devitalized foods on people suffering with progressive and lethal degenerative diseases. Those poor souls who read in the daily newspaper and leading magazines that a CURE IS JUST AROUND THE CORNER.

Of the man I speak, many university biochemists and honest physicians claimed he was FIFTY YEARS ahead of his time. His writings stepped on too many toes and the backlash was profound. Those who had the pleasure of knowing him personally, those who helped many ill patients with his assistance, those who were aware of his generosity and kindness, were always amazed by his energy, productivity and unlimited mental storehouse of biochemical and physiological wisdom. His name was ROYAL LEE.



Doctor Royal Lee was a graduate dentist, an electronic engineer and innovator, a physiological researcher and a manufacturing biochemist. He developed many nutritional concentrating processes and held over 100 patents at the time of his death. Besides those things, he was a fine teacher and philanthropist but he had one very bad fault. He was silly. Silly in the sense that he thought that FACT and TRUTH had real value in the crazy world we live in; the world that went berserk after the turn of the century. Since that time the LIE PREVAILS and truth just does not sell or bring in the big bucks. In fact, too much truth, too loudly spoken, can get a person in a great deal of difficulty. But on the other hand, difficulties and assaults will bring up the level of adrenal output which gives a person the capability of FIGHT rather than FLIGHT. Doctor Lee must have had very good adrenals in that he fought the establishment for over a half century and won many battles.

A large portion of the information that follows was first brought to the attention of truth-seeking physicians by the professional, ethical pugilistic, tenacious purveyor of physiological fact: Royal Lee, DDS.

One of the most perilous deceptions of those who *PLACE PESOS ABOVE PRINCIPLES* is the passing off on a gullible public, phony, synthetic vitamins or crystalline-pure fractions of vitamin complexes and ballyhooing THAT THE BODY DOES NOT KNOW THE DIFFERENCE. That phrase was coined on the one and only Madison Avenue where truth is spelled M-O-N-E-Y. At the very best, synthetic or pure vitamin fractions can function in the human body as only a drug or pharmaceutical agent; certainly not as a physiological supporting nutrient. At worst, as the following citations will demonstrate, that counterfeit supplements can seriously impair the most important of body functions by contributing to biochemical imbalance. (see Appendix A,B, & C)

With regard to VITAMINS, Dr. Lee said, "Natural Complexes differ from the synthetic crystalline vitamins in many ways." For example:

- ⇒ *They are colloidal, protein in nature, in the form of an enzyme or coenzyme*
- ⇒ *The crystalline vitamin itself, in the natural product, is in a critical combination and cannot be split off without destroying its biological activity. If separated it must recombine with the other members of the complex before it can function as a nutrient.*
- ⇒ *The natural complex carries trace mineral activators without which the vitamin fails as a biochemical catalyst.*
- ⇒ *If so-called "HIGH POTENCY" crystalline vitamins are ingested, they must be put into proper combination, as a complex, before the vitamin-function can be appreciated. Meanwhile, most (if not all) of the crystalline component is lost through the kidneys.*

In his writings, Dr. Lee says that "...synthetic vitamins seem to be dangerous. Irradiated Ergosterol (D) the first synthetic vitamin to be widely

marketed, is now known to be extremely dangerous. It has fatally poisoned children in doses smaller than those recommended for treatment of rickets." (JAMA, p 1209, 4/26)

Another authority, Howard H. Hilleman, MA, Ph.D., School of Science, Oregon State College, author of Maternal Malnutrition and Congenital Deformity (with 80 literature references) presented March 17, 1958, gave support to Dr. Lee in stating, "Excess vitamin D in the newborn and young can cause death with metastatic calcification and the SYNTHETIC FORMS are more dangerous than the natural forms of D."

Augmenting the story, Dr. Weston A. Price, in his book, Nutrition and Physical Degeneration, reports the test effects of vitamin D in 500 human pregnancy cases. All those women given the synthetic D developed calcified and diseased kidneys while those given natural vitamin D had no observable changes in the kidneys. This should not be surprising in that Dr. Casimir Funk who discovered the method for concentrating vitamin B, said, "the synthetic product is less effective and MORE TOXIC." Dr. Funk, incidentally, is the scientist who coined the word, "VITAMINE".

Synthetic vitamins are reverses conformationally or MIRROR IMAGES of natural vitamins. However keep in mind that synthetic vitamins are not vitamins at all but synthesized FRACTIONS of a vitamin complex; a mirror image duplicate of just a portion of the real, biologically active and physiologically precise nutritional complex. There is no possible way that a fraction of a vitamin should be called a vitamin. The analogy here is essentially the same as an automobile salesman handing you a wheel from a car and telling you the wheel is an automobile.

Gilbert Levin Ph.D., (Discover, 1981) DISCUSSING OPTICAL ISOMERS or ASYMETRICAL MOLECULES WITH ATOMIC ARRANGEMENTS THAT ARE MIRROR IMAGES OF EACH OTHER, states: "Because its structure is reversed, a left-handed molecule cannot take part in chemical reactions meant for a right-handed molecule any more than a left hand can fit in a right-handed glove... its odd geometry would prevent it from being metabolized by the body."

In turn, the human physiology cannot properly utilize synthetic (mirror-image) fractions in the way natural complexes find their way into the biological reactions that are essential to tissue repair and the sustenance of life. As stated, a synthetic vitamin fraction can only be utilized for a drug or pharmacological effect. As is well known and never denied, the effect of a drug is PALLIATIVE not curative. Palliation means a *making or covering-over of symptoms* while the disease process remains unchanged or progressively gets worse for lack of proper attention. Tissue and cell repair or replacement require the following to restore the approximately 24 billion cells that break down each day in the human body:

- ⇒ *A constant, uninterrupted nerve impulse supply*
- ⇒ *A constant, uninterrupted blood supply*
- ⇒ *All of the VITAMINS in the natural, complex form*

- ⇒ *All of the minerals in an organic form in most instances*
- ⇒ *All of the trace elements essential to metabolism*
- ⇒ *All of the enzymes, coenzymes, and apoenzymes*
- ⇒ *All of the 22 or more amino acids from protein hydrolysis*
- ⇒ *A discontinuance of organic and inorganic poisons either inhaled or ingested in bad air, bad food and/or bad water*

Continuing with some of the abundant evidence against counterfeit food supplements, a report from the Korean conflict is enlightening. A medical columnist, writing in a Pennsylvania newspaper following the said conflict, told of his experience as the medical officer in a North Korean prisoner-of-war camp. He said his fellow prisoners were becoming totally debilitated with the classical B deficiency disease, BERIBERI. From the International Red Cross he obtained synthetic B in the form of Thiamine Hydrochloride. He administered the Thiamine HCl to the most ill prisoners but no change was seen and they continued to worsen. Finally, he procured some RICE POLISH which is a natural source of the vitamin B complex. Rationing this rice polish out to the very ill POWs did the trick and their Beriberi symptoms abated. Obviously, the body does know the difference. Incidentally, another form of the synthetic B₁ is called Thiamine Mononitrate.

In January of 1952, Dr. Lee announced: "I could write volumes on how synthetic vitamins like thiamine castrate the descendants of the victim who uses even as much as double the daily requirement." In support of this statement, in a taped lecture, Dr. Lee cites a study by Dr. Barnett Sure (Jol. Nutr., Aug., 1939). He tells us that Dr. Sure fed a group of rats twice the daily requirement of synthetic B. A like number of pigs were given the same amount of natural B. The results: ALL of the first generation offspring from the pigs fed the synthetic vitamin were STERILE. NONE of the first generation off-spring were sterile from the parents fed natural B. Obviously, synthetic B is not only NOT A NUTRIENT, it is a genetic poison that damages the chromosome packages responsible for transmitting sexual characteristics from the parent to the offspring. In the case of Dr. Sure's pigs, the first generation offspring reaped the toxic, genetic damage. In the case of humans, more than one generation is required.

In 1981, a report from the University of Florida revealed some startling facts. It stated that in the year 1929, the average, young American male adult produced approximately 100 million sperm cells per milliliter of semen. In 1973, forty-four years later, the average sperm count had dropped to 60 million/ml. Then seven years later in the year 1980, the average count was down to 20 million/ml. Incredible

1929 - 100 million/ml 1973- 60 million/ml 1980 - 20 million/ml

What in the world happened to bring about such a horrible drop in male fertility in just 61 years? One very possible explanation could very well lie in the historical use of synthetic B and other counterfeit nutrients. Textbooks record that

vitamin B was first isolated in the year 1926. About 10 years later, scientists were able to synthesize the mirror image of thiamine from coal tar. About the beginning of World War II (9/39) enrichment of refined, devitalized flour became compulsory. The enrichment, *so-called*, was with synthetic fractions of pseudo-vitamins. The practice continues to this day. Since World War II, the American people and people of other countries as well, have had a daily ration of a genetic poison in most of the bread, flour products, cereals and other food items that are forced, by law, to enrich with the only cost-feasible enricher; *synthetic vitamins*.

As far back as 1941, Dr. Agnes Fay Morgan (Ph.D.) food research scientist at the University of California, reported in SCIENCE, 93, 261-262, that animals on a synthetic vitamin enriched diet DROPPED DEAD LONG BEFORE THE ANIMALS ON AN UN-ENRICHED DIET BECAME DISABLED. She remarked at that time that such phony enrichment might: "PRECIPITATE CONDITIONS WORSE THAN THE ORIGINAL DEFICIENCY."

The Vitamins in Medicine, Bicknell and Prescott, 3rd. Ed., warns about the toxicology of synthetic B₁ on page 205. It reads, "In man, side effects have been reported after the parenteral administration of 10 to 100 mg. Doses in excess of 10 mg. daily are unwarranted as they are not metabolized and *excreted unchanged in the urine*. Sudden death has been reported following the intravenous injection of aneurine (B₁). It may cause severe reactions and signs of meningeal irritation."

In the year 1940, volume 30 of the Scandinavian Veterinarian Journal detailed an experiment involving Silver Foxes. One group was fed all of the known synthetic B vitamins as part of their rations. What happened to this group? (1) they did not grow, (2) the quality of their fur deteriorated and (3) they died prematurely. The second group (controls) were given natural sources of B complex with their rations, and guess what the difference was:

(1) They grew as normally expected, (2) they presented excellent quality fur and (3) they survived their expected, usual lifespan.

Another outstanding experiment showing the toxic or poisonous nature of synthetic vitamins is found in the Newsletter of the American Academy of Applied Nutrition, March 1949. It relates a test with animals fed un-enriched white bread as their food. The group fed un-enriched white bread lived for 54 days. Another group was fed a diet of enriched white bread (enriched with synthetic vitamins). This group on the enriched bread lived for 49 days. Since the group eating un-enriched bread lived 10% longer than those on the synthetically fortified bread diet, the obvious conclusion is that, again, the synthetic vitamin is, in reality, a poison and as this reported experiment shows, reduced the LIFESPAN.

As stated many times on many occasions to many physicians:

ASCORBIC ACID IS NOT VITAMIN C. ASCORBIC ACID IS ASCORBIC ACID WHICH IS A FRACTION OF THE BIOLOGICALLY UTILIZABLE VITAMIN C COMPLEX.

Now let it be perfectly understood, plagiarizing an expression from you know who, there is a NATURAL ascorbic acid which is derived from citrus fruits, ascerola cherries, rose hips, green peppers and other fruits and vegetables. However, most all of the ascorbic acid (*vitamin C, so-called*) on the market is synthetically produced from *corn sugar* (glucose) and even though it is synthetically manufactured, it is called natural and organic because corn sugar comes from corn (unless synthetic) and corn is found in nature and of course, anything containing carbon is organic. In turn, the terms natural and organic have been rendered meaningless.

Again, a fraction of a vitamin whether natural or synthetic at best is a drug and can only have a drug effect in the body--not a physiological or curative benefit. The literature is abundant with studies demonstrating that large or megadoses of ascorbic acid can and do create serious problems in the human biochemistry. Some problems reported include: Collagen disease, rebound scurvy which is vitamin C deficiency disease, impaired mineral metabolism, imbalance of other vitamins like vitamin A and B, formation of some types of kidney stones and diabetes mellitus. In the matter of diabetes, keep in mind that synthetic ascorbic acid is HEXOSE derived and that hexose is a six carbon sugar; a monosaccharide.

Dr. Linus Pauling was a strong advocate of ascorbic acid being used as a nutritional supplement as well as a pharmacological agent in the treatment of acute infectious diseases and malignant degenerative states. In the book, New Dynamics of Preventive Medicine, 1974, Dr. Pauling is quoted as to the truth of what ascorbic acid is--contrary to what most people believe. He writes:

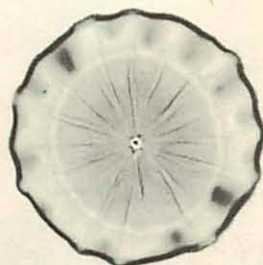
"It is worthwhile to take pure crystalline ascorbic acid. It is made from glucose (corn sugar). What is called rose hips vitamin C is the same pure crystalline ascorbic acid with a pinch of rose hips powder added. It is almost impossible to buy ascorbic acid from a natural source. The rose hip and aserolebarus ascorbic acid is out of the same barrel from Hoffman-LaRoche, as the others, but with a pinch of rose hip powder." There you have it from the horse's mouth.

Today, the majority of people in the civilized world are becoming victims of degenerative disease resulting from chronic poisoning and malnutrition. Even though well fed--they are starving to death for the most essential MICRONUTRIENTS. To administer a counterfeit when they cry for bread is to HAND THEM A STONE.

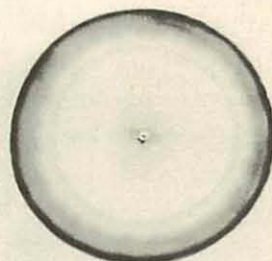
Natural is BEAUTIFUL ---and MORE

Compare CHROMATOGRAMS of natural and synthetic products

'A chromatogram is an analytical technique which identifies components of a solution by means of color absorbed by filter paper.'



orange juice'

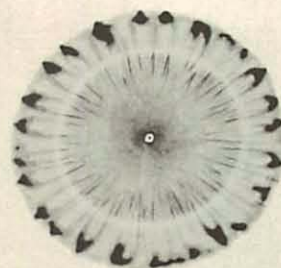


popular orange drink

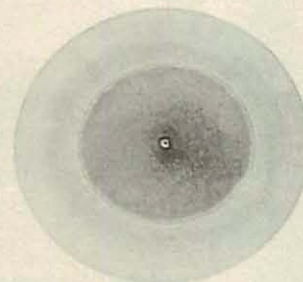
Fertile compost
is beautiful:



Brubakers

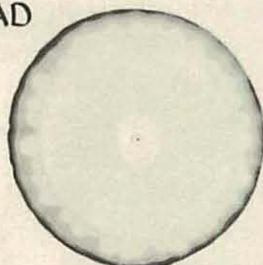


natural vitamin C

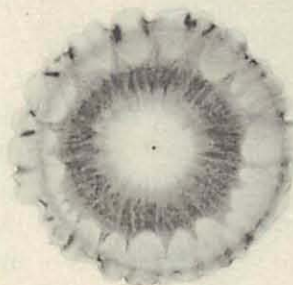


ascorbic acid

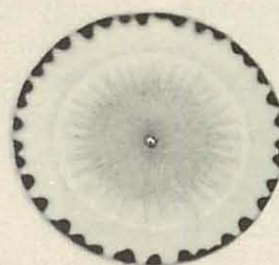
BREAD



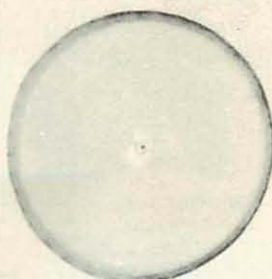
homemade whole wheat'



Altoona



natural C with BHA

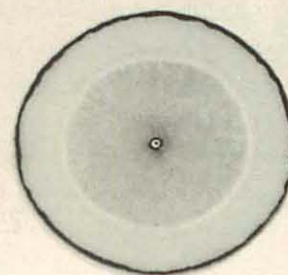


commercial white

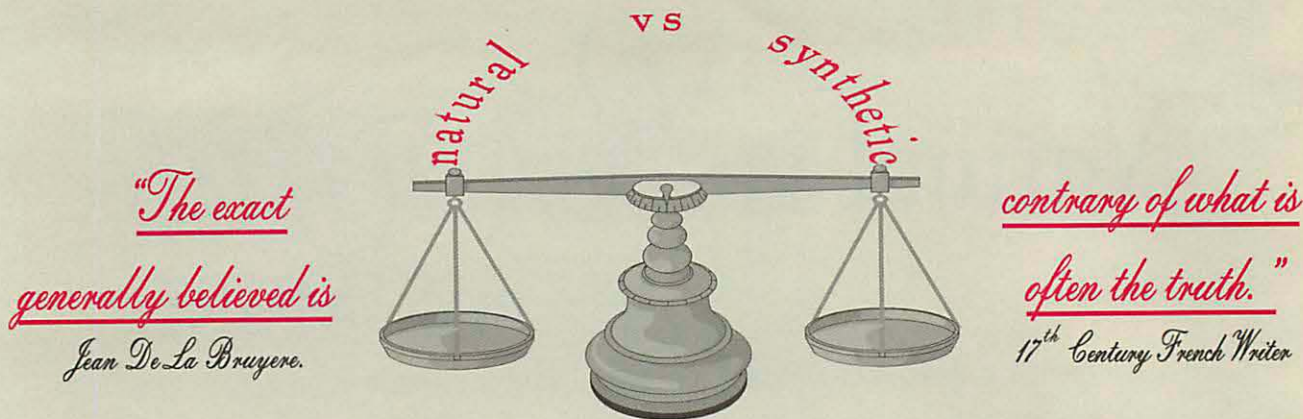
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natural C with BHT



Explanatory Notes for Appendix A, B, C*

There exists in the literature overwhelming empirical and clinical evidence, spanning more than seventy years, supporting the principle that vitamins function as complexes and fail as nutrients when synthetically manufactured or derived by refining or isolation even from natural sources. The student of any controversial subject is well advised to pursue the truth of that subject by reviewing the literature that appeared during the period of time when that subject was most vigorously debated—usually at the genesis of the debate. That is when the most objective evidence tends to be presented because the matter-at-hand has not yet resolved itself politically, economically, and to the benefit of special interests. Once these other non-scientific and corrupting influences are injected into the “scientific” debate, a form of scientific censorship secures the “winning side’s” position, no matter how wrong it happens to be. At that point the flawed theory becomes mainstream and dominates as a guiding false assumption. This has certainly been the fate of the study of nutrition and vitamins during the 20th Century.

To assist the reader in sifting through the data, APPENDIX A, B, and C assemble significant insights into the scientific investigation that has appeared over the course of 70 years in the foremost peer reviewed scientific journals. APPENDIX A gives the collaborating biochemical data gathered from the latest research thus far completed on PHYTOCHEMICALS and XENOBIOTICS. Appendix A, therefore, offers insight into the biochemical rationale for the findings presented in B and C. APPENDIX C discloses the clearly stated findings of unbiased early biomedical researchers who only had an agenda of true discovery (including a statement by the man awarded the Nobel Prize for discovering ascorbic acid—stating it did not work on human scurvy). APPENDIX B shows the current supporting evidence for the earlier findings presented in APPENDIX C.

What is not presented herein is the hundreds of thousands of personal documentation of individual physicians who personally experienced the failure of synthetic vitamin supplements *and* of those who encountered profound success using completely natural whole food complex nutritional concentrates containing all naturally occurring synergistic factors. The student of this matter need only realize that *once the concept of synthetic vitamins became the established mainstream view of nutrition, no link to cancer, no link to heart disease, and no link to most degenerative maladies were associated with nutritional therapy within conventional medicine for over seventy years.* However, science is ultimately on the side of those who are correct. When scientists vigorously oppose those who are correct, and continue to defend entrenched positions while scornful of those they oppose, they prove that they are not scientists at all, but rather members of a cult. The problem for them scientifically is that the truth refuses to go away.

This guiding false assumption led to an early death of hundreds of millions of people who suffered and died by, as Royal Lee put it, *“digging their graves with their teeth.”*

Why Synthetic Vitamins Fail

Phytochemical Complexes and Xenobiotics

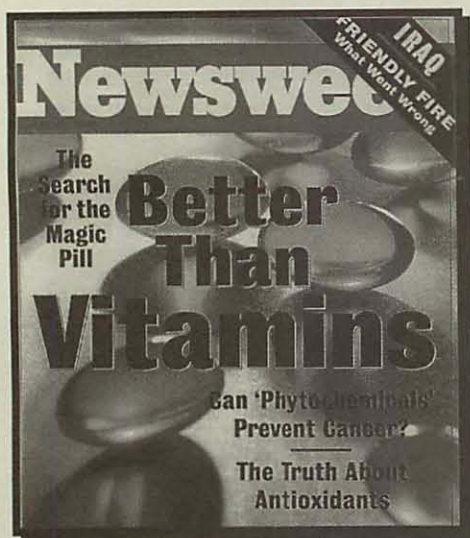
"One of the biggest tragedies of human civilization is the precedents of chemical therapy over nutrition. It's a substitution of artificial therapy over natural, of poisons over food, in which we are feeding people poisons trying to correct the reactions of starvation." Royal Lee January 12, 1951

Over two hundred studies since 1985 have appeared in peer-reviewed scientific journals citing significant reductions in cancer, heart disease, chronic degenerative and autoimmune disease among multiple and diverse populations consuming diets high in fresh fruits and vegetables. Faced with the overwhelming evidence of these studies, coupled with the utter failure of the pharmaceutically waged "wars against" cancer, heart disease, etc., establishment institutions including the National Cancer Institute, American Cancer Association, American Heart Association, National Institutes of Health, and the American Medical Association have all done a 180-degree about-face of their official positions on nutrition and disease. The dilatory response to the truth by these institutions, coming very many decades after the evidence presented by Royal Lee, Weston Price, and many of their contemporary colleagues is a matter of great concern; especially in light of the scientific censorship they executed against all naturalists. However, of key-note to this paper is that large-scale studies show that WHEN SYNTHETIC VITAMINS ARE SUBSTITUTED FOR DIETS HIGH IN FRESH FRUITS AND VEGETABLES, THE PROTECTION AGAINST DISEASE IS LOST AND, IN PROOF OF FACT, EVIDENCE SHOWS, *REVERSES*. Studies reported on in Appendix B and C further demonstrate this. These "reverse" results, though startling to the scientific community, were fully anticipated by the theories of Royal Lee, who often reported, as is documented earlier in this paper, that synthetic vitamins can have a *worse* effect than actual starvation. Further augmentation of the reasons previously cited as to why this is so requires a basic understanding of PHYTOCHEMICALS and XENOBIOTICS. It is critically important to understand the meaning of these two biochemical words. Random House Unabridged Dictionary Second Edition defines them:

PHYTOCHEMISTRY--- *n. the branch of biochemistry dealing with plants and plant processes.*

XENOBIOTIC --- *n. a chemical or substance that is foreign to an organism or biological system.*

Thousands of monographs published by Lee show his constant reference to foods containing what he called "the unidentified organic matter" or "the unknown organic factors" compounded with vitamins, minerals, trace elements, etc. For shorthand, Lee called them "vitamin synergists" or "vitamin synergistic cofactors." Recognizing that the true potency of vitamins were delivered to the body's cells through the combined effect of the "vitamin complex," Lee instructed that a vitamin was a "complex functioning mechanism" rather than a single chemical effect (as proffered by the proponents of ascorbic acid as vitamin C). The discovery of *hundreds* of PHYTOCHEMICALS since 1990 has been complete vindication of his theories. Going beyond mere theory, Dr. Lee applied his engineering genius to biochemical manufacturing processes that he designed to capture the complete vitamin-phytochemical-complex; active and synergistically intact into nutritional supplements.



Phytochemicals featured
on cover of Newsweek April 1994

THE SEARCH FOR PHYTOCHEMICALS

Phytochemical discoveries evolved serendipitously from research initially conducted by drug companies seeking to learn how the body breaks down and metabolizes drugs. Believing that such research would lead them to an understanding of how mechanisms in the liver and organs of detoxification broke down their drugs, they could then design drugs that could have a more potent and long-lasting effect. This is the study of how the body rids itself of XENOBIOTICS, which drugs certainly are. This investigation eventually led them to discover, to their great surprise, *that the diet of the individual held the critical key to how their body metabolized drugs*. This research revealed the presence of compounds in foods called phytochemicals (Lee's "unidentified organic matter"). The "Drug Metabolizing Enzymes" they sought were formed in and from non-vitamin compounds found in unrefined foods. Vitamins in foods help form phytochemicals in plants as well as activating them in the human body. This is supportive of Lee's

assertion that vitamins were actually plant hormones. The April 25, 1994 edition of Newsweek dedicated the cover story to phytochemical research. Some key excerpts, when seen in the light of Lee's explanation of vitamins being complexes in plants, explains much of the failure of synthetic vitamins to function as nutrients, and why Lee's approach to the whole food complex was so successful.

"It is whole foods--especially fruits and vegetables--that pack the disease-preventing wallop. That's because they harbor a whole ratatouille of compounds that have never seen the inside of a vitamin bottle for the simple reason that scientists have not, until very recently, even known they existed, let alone brewed them into pills." Newsweek April 25, 1994

The first sentence of the above statement is correct, but then falls apart in the italicized portion. The writer is obviously uninformed that whole organic food nutritional supplements, containing the entire phytochemical-vitamin complex is *exactly what Royal Lee designed and manufactured for almost 70 years*. Additionally, he fought hard to educate researchers and spent a personal fortune to educate doctors about this precise concept.

Hundreds of phytochemicals that afford the body extraordinary xenobiotic protection have now been identified. Many of the "newly" recognized phytochemicals have actually been known for years, as Lee often wrote about their actions. Their function as trappers and killers of xenobiotics is now coming into a clear focus. A number of phytochemicals stimulate the formation of Phase 2 enzymes. This class of Drug Metabolizing Enzymes detoxify carcinogens (or any xenobiotics) by *linking them to* molecules that discharge them from the body. They work within hours after ingestion, as xenobiotics are removed before they can cause mutations by attaching to DNA molecules in the cell.

"At almost every one of the steps along the pathway leading to cancer, there are one or more compounds in vegetables or fruit that will slow up or reverse the process."
Epidemiologist John Potter, U. of Minn. Newsweek April 25, 1994

One of the leading phytochemical researchers in the country today is Elizabeth Jeffrey, Ph.D., associate Professor of Toxicology University of Illinois Champagne. She began working with Drug Metabolizing Enzymes (DME) over 20 years ago at the University of Minnesota. According to Dr. Jeffrey, vitamins and phytochemicals effect the rate at which the body breaks down drugs and environmental toxins. She estimates that there are between 50 and 100 DME which do this, referred to as P450 enzymes. The DME oxidize foreign chemicals and make them more water soluble which assists the body in getting rid of them. They are protein and iron-bearing cytochromes from the plant cell mitochondria and participate in oxidative reactions.

One of the most instructive discoveries that Dr. Jeffrey reports is that when animals were fed these DME in isolated pure form, there was significantly less protective action than that which occurs from feeding the whole food, which contains all the synergists in naturally occurring forms. This lends significant support to the discoveries and statements by Royal Lee concerning whole food verses isolated extracts or crystallines. According to Dr. Jeffrey, vitamins and phytochemicals effect the rate at which the body breaks down all drugs and environmental toxins. She reports that vitamins effect the formation and action of DME in the plant and in the body.

From the understanding we have gained about the modulating influence of phytochemicals upon xenobiotics, and the speed at which they neutralize, trap and eliminate xenobiotics from the body, we view a critical insight into how the body perceives synthetic vitamins. By noting the speed and consistency by which synthetic vitamins (unlike naturally occurring food vitamins) are excreted by the urine, it is increasingly clear that the body treats crystalline (synthetic) vitamins as xenobiotics. Though demonstrated repeatedly with all synthetic vitamins, once again, scientists at Beloit College in Wisconsin report that the body eliminates crystalline ascorbic acid (so-called vitamin C) within 12 hours after ingestion. This was noted in Ladies Home Journal in June 1995, leading to the uninformed advice to take ascorbic acid several times during the day because it is eliminated so quickly. *In other words, since you have a hole in your pocket, put money into it several times per day rather than lose it all at once!* The point to be made is that vitamins, like gold to the cell, are never to be eliminated because they are not a waste substance. The fact that synthetic vitamins are recovered in urine is proof enough that they are treated as waste and xenobiotic in nature.

Because this discussion is primarily about natural vitamins, it is not the scope of this paper to cover the full range of phytochemical issues. Phytochemicals are briefly reviewed herein to demonstrate the reality that vitamins and foods are highly synergistic interactive complexes. To conclude this section, we should give the last word on the subject of the natural whole vitamin complexes vs. synthetic vitamins concocted into supplements to Royal Lee himself, since he was the first one to ever bring it up and develop the research. In describing how the whole is greater functionally than the quantitative sum of its parts, in July 1952, Royal Lee, in a speech to an Osteopathic convention, used the analogy of a functioning watch, vs. trying to assay its elemental components to understanding how it functioned as a time-piece:

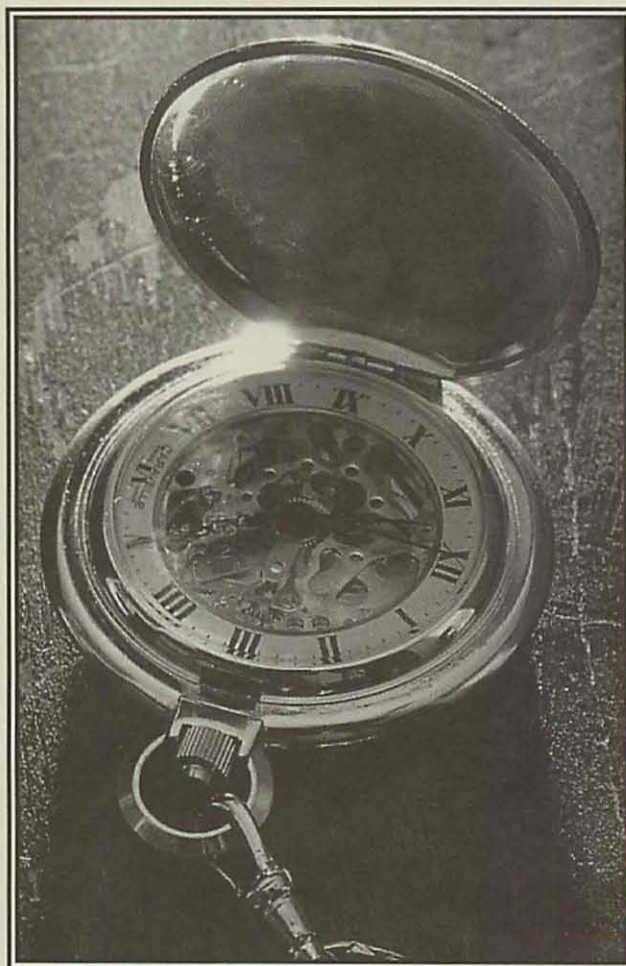
"To clarify the point, assume that you wanted to have all your separate food elements like fats, carbohydrates, proteins, vitamins, and minerals etc. purified and put up in chemically assayable form....What about all the unknown factors [phytochemicals] that would be thrown away in the rejected "impurities" that might later be found necessary to life?

"To judge a natural complex in the light of pure chemicals is just as absurd. Natural complexes containing the various vitamins should be considered as functional mechanisms. The oxidation-

reduction enzyme system of which ascorbic acid is a part, or the various enzyme systems that form the complicated vitamin B and G complexes in nature, must be considered as much of a mechanism as a watch, and to chemically analyze a watch to determine its ability to keep time would be as reasonable as to remove the ascorbic acid from the vitamin C complex and call it the 'vitamin.'

"It is as if some naive individual became imbued with the notion that they can build a watch by weighing and dumping together a prescribed quantity of brass, iron, sapphires, gold and glass---or that they can concoct a vitamin complex that will function as well as a natural product as found in foods by the same 'prescription' method."

**Lee's analogy of a watch and a vitamin complex:
The whole is greater than the sum of its parts.**



All of the diverse components of a functioning mechanism function synergistically. Remove even one part--the function fails. Mechanically or biochemically this principle holds true.

1. Medium To High Dosages Of Vitamin A Supplements Synthetically Made, Provide Clear And Present Danger Of Birth Defects.

SUMMARY: New England Journal of Medicine, (to be published) November 23, 1995. Boston University School of Medicine researchers found that Vitamin A supplements can cause birth defects in humans, and warned that megavitamin supplements can pose a danger. A large-scale study shows that women taking vitamin A supplements in doses of 10,000 international units (iu) per day while pregnant (even within first three weeks of conception) risk a 240% increase in birth defects. 20,000 iu per day increases the risk by 400%. This study cites no birth defect risk from *foods* containing vitamin A or its precursors i.e. carotene and beta-carotene. Only synthetic forms of vitamin A are used in supplements at such high levels. This is the first large-scale human study showing that synthetic vitamins can be teratogens (a substance linked to birth defects).

DETAILS: On October 7, 1995 The New York Times reported on a study to be published in the New England Journal of Medicine on November 23, 1995, linking vitamin A supplements and birth defects. This was a very large-scale long-term study involving 22,748 pregnant women over a four-year period. The research was conducted by the Boston University School of Medicine.

The babies of women who consumed 10,000 iu daily of vitamin A from nutritional supplements had a 240% greater incidence of birth defects. Unborn babies exposed to 20,000 iu of vitamin A from supplements had a 400% increase risk of birth defects. The defects included: cleft lip, cleft palette, heart malformations, and nervous system damage such as hydrocephalus (water on the brain).

The researchers were careful to note that carotene, beta-carotene, and preformed vitamin A in the amounts and forms in actual foods *did not result in birth defects*. No amount of naturally occurring vitamin A in whole foods were found to be mutagenic. Even liver, of which three ounces contain as much as 30,000 iu of vitamin A, showed no evidence of contributing to birth defects. Dr. Ken Rothman, one of the studies leaders, told National Public Radio on October 6, 1995 that this study provides no evidence of damage from vitamin A in liver. The vitamin A in foods, which are naturally balanced with synergistic cofactors, including other vitamin complexes, phytochemicals, minerals, trace elements, enzymes, and proteins, proved to be protective, growth promoting, and non-toxic. This balanced effect of naturally occurring nutrition vs. high dose synthetic pharmaceutical nutrition is safe and in fact essential for the development of the fetus. Vitamin A, it was noted by the BU researchers, is essential for cell differentiation and organ development, especially the eyes in the fetus.

BU researchers found that the teratogenic effect of vitamin A supplementation from man-made forms can occur even within the initial three weeks of conception, before the mother even knows she is pregnant.

It is not uncommon for synthetic vitamin A supplements and multivitamin supplement tablets to contain 10,000 iu to even 25,000 iu or more of synthetic vitamin A. It should be noted that a number of prescription drugs used by dermatologists contain over 100,000 iu of synthetic forms of vitamin A. Other toxic effects from hypervitaminosis A include partial or universal loss of body hair.

COMMENT: A teratogen must damage cellular DNA or its synthesis to cause genetic mutation to occur. Since the DNA, or nucleoprotein, of a cell is protected by the nucleomembrane in cells, it requires almost a stealth-like action of a teratogen to escape DME detection and penetrate this protective wrapper. It would appear that synthetic vitamin A is a particularly effective xenobiotic in this regard. Instead of being whisked out of the body, as most xenobiotics are, the synthetic vitamin apparently fools the body's enzymes into not attacking it because it is "disguised" as a vitamin, thus initially allowing it where real vitamins are allowed. By the time it's xenobiotic identity is recognized, it has already reacted with cellular genetic components in the wrong way. In this form, the teratogen is "disguised" as a vitamin. Ironically, most birth defects are associated with vitamin deficiencies, such as folic acid (spina bifida) and other B complex vitamins. Teratogenic effects on laboratory animals were first noted with synthetic B vitamins as long ago as the 1930s.

Dr. Royal Lee designed vitamin A supplements from whole foods for over 50 years. They included various nutritional formulas containing naturally occurring carotene, beta-carotene, and sometimes preformed vitamin A. The maximum amount of actual preformed vitamin A he concentrated from whole food into a supplement was only 1,500 iu per tablet. The potency of the vitamin A supplements he designed were not predicated upon the quantity of vitamin A, but rather the effectiveness derived from the balanced phytochemical complex containing the right forms of vitamin A with synergists. The following reference from Appendix C is reproduced here to shed light on hypervitaminosis. Even by 1936, Doctors in the US and Germany had reported that hypervitaminosis only resulted when vitamins were given in isolated forms, and not when given in the naturally occurring balance of whole foods.

"By simultaneous supply of water-soluble and fat-soluble vitamins together a hypervitaminosis cannot be produced, even though they may be given in very large quantities.....".

STEPP, W., KUHNAU, J., and SCHROEDER, J.,
THE VITAMINS AND THEIR CLINICAL APPLICATIONS, (Die Vitamine und ihre IGINISCHE Anwendung) Ferdinand Enke, Stuttgart, Germany, 1936

2. Long-Term Large-Scale Study by NCI Shows Reversal Of Fortune For Smokers Who Ingest Synthetic Vitamins. Cancer, Stroke, And Death Rate Increase. Researchers Confounded.

SUMMARY: Two important vitamins in synthetic forms, beta-carotene and vitamin E, gave no protection against lung cancer in a controlled test of 29,000 Finnish male smokers, and the data suggests the supplements were actually harmful. *Men taking synthetic beta-carotene had an 18% higher incidence of lung cancer, more heart attacks, and an 8% higher overall death rate. Those taking synthetic vitamin E had more strokes from bleeding in the brain.*

DETAILS: New England Journal of Medicine reported on April 14, 1994, the results of a very large-scale long-term 10 year study costing 43 million dollars of “randomized, double-blind, placebo-controlled primary-prevention trial to determine whether daily supplementation of alpha-tocopherol, beta-carotene, or both would reduce the incidence of lung cancer and other cancers.” A total of 29,133 male smokers 50-69 years of age, from Finland were given synthetic vitamins. *“The daily dose of beta-carotene used in the trial was 20 mg of a synthetic form, a formulation with a particularly high bioavailability which increased blood levels more than 10-fold. This is about as much as it is practical to use, since even at this dose, between one quarter and one third of the participants reported yellowing of the skin [see comments on this point below]. The daily dose of alpha-tocopherol, however, was 50 mg of a synthetic form that does not have a high bioavailability and that increased blood levels of vitamin E by only about one third.”* NEJM Vol.330 No.13 April 14, 1994

The New York Times reported on this study and quoted the researchers stating that they “saw a confusing pattern of mostly adverse effects,” and continued “these supplements may actually have harmful as well as beneficial effects” although they noted no beneficial effects observed in this study. The New York Times noted on April 14th: “After five to eight years, the investigators reported, they could find no evidence that the supplements had helped.” The Washington Post reported on the same day that “Scientists who launched a major study to prove that a form of vitamin A [beta-carotene] prevents cancer were amazed when their findings suggested just the opposite.” The Washington Post continued “After 10 years of study, it turns out that beta-carotene might actually cause cancer.”(p.A6).

Researchers note that an 18% increase in lung cancer among the group taking synthetic beta-carotene is an extremely statistically significant number and that the chances of a statistical fluke in this study were about one in a hundred.

COMMENT: Synthetic vitamins fail when put to the scientific test in actual human feeding studies, again and again and again. This is no reflection of natural vitamin complexes, anymore than counterfeit money can be used to appraise wealth. Synthetic vitamins do not work the way food does. That is why over two hundred studies about foods, not synthetic supplements, show the opposite results. *The first overlooked point that should have been recognized by these researchers was that when one-third to one-fourth of the men taking synthetic beta-carotene complained of skin turning yellow, they should have known that naturally occurring beta-carotene does NOT yellow the skin. Carotene does yellow the pigment of the skin, but beta-carotene does not. Beta-carotene is naturally occurring in the chlorophyll complex of all green plants. If it did yellow the skin, all of the grazing mammals on earth would be yellow, which, of course, they are not (it usually tends towards a light pinkish color; lift up the fur on your dog or cat).* Obviously synthetic beta-carotene is metabolized as a xenobiotic and the oxidized waste substance of its breakdown is staining the pigments of skin. The naturally occurring family of carotenoids in plant life is vast, with literally hundreds of forms. Beta-carotene is just perhaps the most famous of the carotenoid phytochemical family.

3. Four Year Dartmouth College Colon Cancer Study shows synthetic vitamins no protection

SUMMARY: July 22, 1994, New England Journal of Medicine. Researchers found that synthetic antioxidant vitamins were not effective against recurrence of benign growths of the colon when consumed for a four-year period. The Dartmouth study sought to document the effects of antioxidant vitamin supplementation in preventing recurrence of adenomas of the colon.

In the study, 864 patients who once had adenomas and had them excised were given daily 25 mg of beta-carotene, 1 gram (1000 mg) of crystalline ascorbic acid (so-called vitamin C), and 400 mg synthetic vitamin E, all three antioxidants, or a placebo. The study showed no effects of any of the treatments.

A Dartmouth researcher stated that *"current data do not support the use of antioxidant vitamin supplements for purposes of cancer prevention."*

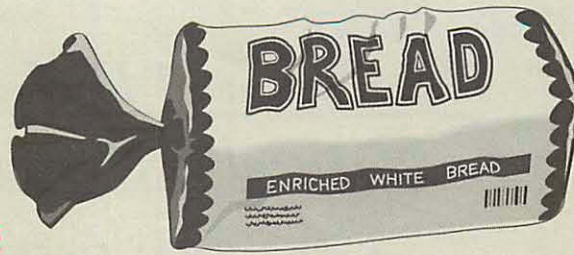
COMMENT: Cancers of the GI tract effects are diagnosed over 120,000 times per year in the US. Diets high in natural vitamin-rich fruits and vegetables have repeatedly shown in wide scale studies to be protective of these cancers. However, when synthetic vitamins are substituted for the naturally occurring vitamin-phytochemical-mineral complexes of foods, no protection is conferred. More evidence is again developed demonstrating the faulty premise that synthetic vitamins function like nutrients found in foods and that food-sourced nutrients function synergistically and not in isolation.

4. Nutritional Supplements And The Elderly

SUMMARY: June 23rd 1994 issue of the New England Journal of Medicine, reports that multivitamin synthetic vitamin supplementation does not benefit elderly people (average 63 years age) who were previously experiencing muscle weakness and physical frailty.

COMMENT: This study failed to show any improvement of elderly Americans while on a typical multi-vitamin supplement. Since the supplements were not derived from raw foods, it is no surprise and is more confirming support that synthetic vitamins fail to act nutritionally.

What
and laymen
ask themselves



physicians
alike should
about pure

crystalline vitamin supplementation
(that common sense might prevail)

- ⇒ *Why do I need to purchase and take synthetic vitamin supplements if all the refined foods are already “enriched” with them? All refined flour, grain, and rice products, as well as many processed food-stuffs are spiked with synthetic vitamins by federal law (since 1939). Some breakfast cereals are spiked with particularly high doses of synthetic vitamins, as well as inorganic minerals.*
- ⇒ *If these artificial crystalline vitamins are actually the same, why would a person ever be deficient in them? Is it just because there is just not a high enough dosage of synthetic vitamins “enriched” into these refined “foods” and therefore I should take more?*
- ⇒ *Why should I bother eating fresh fruits and vegetables if the vitamins provided in “enriched” foods are just the same? Is fiber the only advantage to fresh produce over “enriched” foods?*
- ⇒ *Why should I buy something that is already artificially added to the food supply?*
- ⇒ *If the body does not know the difference between artificial vitamins and natural vitamin complexes, why are artificial vitamins recovered in the urine?*

ANNOTATIONS

Note: all italicized or bold type
added for emphasis

Artificial vitamins inferior to natural
complexes and are quickly excreted
through the urine (characteristic of
a xenobiotic substance). Ascorbic
acid cited as weaker than natural
vitamin C.
Synthetics are cited as unable to
correct dietary deficiency.

Balanced vitamin intake non-toxic
even in high doses.

Synthetic vitamin E loses 99% of
potency

Synthetic vitamin cited as
teratogenic to offspring.

Documented Differences Between Natural & Synthetic Vitamins

1. GENERAL OBSERVATIONS ON SYNTHETIC VITAMINS

Clinical and Laboratory Comparison:

"The Section d'alimentation of the Comité Consultatif d'hygiène at Vichy [France] determined to organize the systematic distribution of vitamins A, B, and D, Professor Lesne, *a specialist in vitamin research, believes that the effect of natural vitamins is superior to that of the artificial ones. For instance, the treatment of scurvy by giving 50 cc. of lemon juice containing 25 mg. of ascorbic acid produces quicker results than 25mg. of ascorbic acid administered as a medicament. The artificial vitamins, especially vitamin C, are quickly absorbed and also quickly secreted by the kidney.* These vitamins have to be administered every day in order to be efficacious. *Besides, there exists an antagonism among the different artificial vitamins.* The body eliminates, for instance, vitamin C if vitamin A or D is administered simultaneously. Professor Lesne said at a meeting of the Académie de Médecine that if good results have been realized with the administration of artificial vitamins **'they are not able to mend the deficiency due to inadequate food.'**"

JOURNAL OF THE AMERICAN MEDICAL
ASSOC., 118, 6:475, February 7, 1942

Natural Vitamins Contain all Fractions:

"By simultaneous supply of water-soluble and fat-soluble vitamins together a **hypervitaminosis cannot be produced**, though they may be given in very large quantities....."

STEPP, W., KUHNAU, J., and SCHROEDER, J.,
THE VITAMINS AND THEIR CLINICAL APPLICATIONS,
(Die Vitamine und ihre IChinische Anwendung)
Ferdinand Enke, Stuttgart, Germany, 1936

"Natural forms of vitamin E [complex] lose up to 99% of their potency when separated from their natural synergists."

ANNUAL REVIEW OF BIOCHEMISTRY, 1943 p.381

"When female rats are reared and bred on Steenbock and Black I's rachitogenic diet number 2956 supplemented with viosterol (synthetic vitamin D) to forestall the development of rickets, *congenital malformations appear in about one third of their offspring.*

Synthetic vitamins and congenital defects

"...Abnormal and normal offspring can be obtained alternatively from the same female when the deficient diet and the diet supplemented by liver are fed alternatively. The experimental results described have been obtained in two different strains of rats. It seems that the normal prenatal bone development of these rats depends on a nutritional factor which is absent or inadequate in the deficient diet and present in large amounts in liver."

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION., Soc.Proc., 118, 12:1002, March 21., 1942

More than a single isolated vitamin involved in creating deficiency disease states

"Attention is called by V. P. Sydenstricker, M. D., of the University of Georgia, School of Medicine, Augusta, to the fact that among human beings more than one vitamin is concerned in the production of any deficiency. The development of avitaminosis is due to the failure or perversion of normal biochemical reactions which can be completed only when adequate supplies of different vitamins are available."

MODERN MEDICINE, 9, 10-35, October -1941

"Until all the factors lost in milling are known and it is known that each of the others is adequately supplied by other foods, the logical solution of the problem presented is the restoration of the grain embryo itself to the diet."

MARKS, H. E., *Vitamin Deficiencies and Restored Foods*, Letters to the Editor of the: JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 114, 6:512, February 10, 1940

2. VITAMIN A

Clinical and Laboratory Comparison--

Vitamin from whole food sources protect. When extracted (even though natural) they loose effect. Synergistic co-factors apparently lacking.

Stephenson found that a crude (alcohol-light petroleum) extract of dried carrot when added to a fat lacking in vitamin A conferred upon it growth-promoting properties and protected rats from Xerophthalmia while pure carotene extracted from carrots was without effects.

SHERMAN, H., and SMITH, S., *THE VITAMINS*, Second Edition, Monograph Series, No. 6, page 244 The Chemical Catalog Company, Inc., New York, 1931

"The occurrence of increased amounts of carotene in the blood of patients with diabetes mellitus has long been recognized both by the clinical observation of xanthosis and by the results of laboratory tests. A group of 20 patients with juvenile diabetes mellitus were studied, and all were found to have poor light adaptation by the Frober-Faybor biophotometer. Three of the group were subjectively aware of night blindness, and nine showed cutaneous changes compatible with vitamin A deficiency. The daily administration of 60,000 U. S. P. units of vitamin A in the form of crystalline carotene dissolved in vegetable oil, for as long as 14 days did not affect the light adaptation of the patients with diabetes mellitus. The daily administration of 60,000 U.S.P. units of vitamin A to patients with diabetes mellitus in the form of

Synthetic vitamin A useless in restoring night vision in diabetics while natural vitamin A cures night-blindness

concentrated fish liver oils, caused their light adaptation to return to normal or nearly normal in periods ranging from 3 to 21 days. The cause of poor light adaptation in patients with juvenile diabetes mellitus appears to be an inability to convert carotene to vitamin A."

BRAZER, J., and CURTIS, A., ARCHIVES OF INTERNAL MEDICINE, 1940 as abstracted by ENDOCRINOLOGY, 26, 5-936, May, 1940

Vitamin A in butter more potent than cod-liver oil. Suggestive of the need for synergistic co-factors.

..... A unit of vitamin A in butter, determined chemically, is apparently more efficient biologically than a unit of vitamin A in *cod-liver oil* determined in the same way."

FRAPS, G., and KEMMERER, A., Texas Agr. Expt. Sta., Bull. 560, 3-21 (1938) abstr. from CHEMICAL ABSTRACTS, 32, 8:3039, April 20, 1938

Vegetable vitamin A more potent than fish oil in night blindness

"Spinach vitamin A is ten times as potent, unit for unit, as vitamin A from fish liver oil in the treatment of night blindness."

FREDERICHSEN, and EDMUND, Studies of Hypovitaminosis A:II A New Method for Testing the Resorption of Vitamin A from Medicaments, AMERICAN JOURNAL OF DISEASES OF CHILDREN, 53:89-109, Jan., 1937; Clin. Expts. in the Vit - A bal. in children after various diets, *ibid*, 53:1179-1201, March, 1937

3. VITAMIN B COMPLEX

Clinical and Laboratory Comparison:

Arbitrary combinations of B vitamins ineffective compared to whole food containing naturally occurring B complex

"The addition of yeast or Peters' eluate to the diet regularly prevented this liver damage. Rich and Hamilton observed the development of cirrhosis of the liver similar to the Laennec type in all of fourteen rabbits which were kept on diet supplemented by various vitamins but lacking yeast. *These investigators determined that the injury was due to lack of some factor contained in yeast other than vitamin B 1, B 2, B 6, or nicotinic acid.*"

HA S, W., Annual Review Physiol., 3:259-282, 1941

white flour inferior even when B1 (thiamin HCl) added

"The nutritive value of straight-run white flour (73% extraction, tested on young growing rats) has been found inferior to that of wholemeal flour, even when the defects of the former in protein, minerals and vitamin B1 have been corrected."

CHICK, H., THE LANCET, 2:511-512, October 26, 1940

Isolated B vitamins fail while B complex whole foods effective

"It (stomatitis) does not respond to treatment with vitamin B6, *riboflavin*, or nicotinic acid, singly or in combination. Restoration of the mouth to normal was accomplished only after intensive therapy with the vitamin B complex. *The factor or factors responsible are present in the vitamin B complex and*

may be any of the less well-known fractions which have not as yet been isolated of synthesized and consequently have not been applied in human nutrition studies."

ROSENBLUM, L., and JOLLIFFE, N JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION., 117:2245, December 27, 1941

"I am very familiar with the difficulties involved with the fortification of foods with synthetic vitamins or concentrates of individual vitamins, and the results in Chart 1 clearly emphasize the problem in question. In this case chicks were placed on the modified Goldberger diet alone and supplemented with various synthetic vitamins and concentrates of some of the new members of the B complex. In most cases some improvement in growth was noted due to the feeding of each additional vitamin, but **normal growth was not obtained until a fair amount of a natural food such as liver, kidney or, yeast was added. Likewise, synthetic vitamins should be used with caution in order to prevent the development of deficiencies more serious than the deficiency we set out to control.**"

ELVEHJEM, C., JOURNAL OF THE AMERICAN DIETETIC ASSOC., 16, 7:654, August-September, 1940

"In dogs fed a low protein diet supplemented with thiamin hydrochloride, nicotinic acid, riboflavin, pyridoxine hydrochloride and either pantothenic acid or purified liver extract, a deficiency state developed characterized by loss of appetite, substantial loss of weight, moderate to severe anemia and peptic and cutaneous ulcers. The condition was prevented by an increase of protein diet. [Disease] was not cured or prevented by the addition of cystine, choline, paraminobenzoic acid, inositol or an eluate of clay absorbate of liver extract."

FOUTS, P., JOURNAL OF THE AMERICAN MEDICAL ASSOC., Soc. Proc., 118, 12:1002, March 21, 1942

4. VITAMIN C

Clinical and Laboratory Comparison:

"I had a letter from an Austrian colleague who was suffering from a severe hemorrhagic diathesis. He wanted to try ascorbic acid in his condition. Possessing at that time no sufficient quantities of crystalline ascorbic acid, I sent him a preparation of paprika that contained much ascorbic acid and the man was cured by it. Later with my friend, St. Rusznyak, **we tried to produce the same therapeutical effect in similar conditions with pure ascorbic acid but we obtained no response.** It was evident that the action of paprika was due to some other substance present in this plant."

ALBERT SZENT-GYORGYI, OXIDATION, pp. 73-74, Williams and Wilkins, Baltimore, 1939

Synthetic B vitamins fail in normal growth tests while whole vitamin rich foods correct growth

warning that synthetic vitamins can cause worse deficiency than they are used to correct

Szent-Gyorgyi, the biochemist who discovered Ascorbic Acid (for which he was awarded the Nobel Prize for Medicine in 1937) declares that other substance(s) than ascorbic acid are responsible for the antihemorrhagic (anti-scurvy) action of vitamin C. Implies that vitamin C is a complex, not a single chemical.

Lemon juice cures intestinal bleeding (symptom of scurvy) when ascorbic acid fails

"It was demonstrated that guinea pigs, fed vitamin C-free diets, could be more thoroughly protected against infections with pneumococci by lemon juice or orange juice than by pure ascorbic acid."

STEPP, W., KUHNAU, J. and SCHROEDER, J.
The Vitamins and Their Clinical Applications
(Die Vitamine und ihre klinische Anwendung)
Ferdinand Enke, Stuttgart, Germany, 1936

Natural vitamin C reduces polio symptoms while ascorbic acid is significantly less effective

"The use of vitamin C when increased capillary permeability is due to deficiency of that vitamin is of course specific. *The fruit juices are more, effective than the synthetic vitamin C.*"

MADISON F., comments by, on the paper of Fowler and Barer, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

Lemon juice (contains natural vitamin C complex beyond ascorbic acid) cures intestinal disease but intravenous ascorbic acid fails

"Three cases of hemorrhagic intestinal disease did not improve after daily intravenous injections of ascorbic acid, but were cured by lemon juice....."

LUND, H., and ELMBY, A., abstr. from BRITISH JOURNAL OF CHEMISTRY AND PHYS., page 678, August, 1938

"..... treatment with natural vitamin C had reduced the incidence of typical paralysis by about 1/3 as compared with the controls (from 92.8 to 59.1 per cent) while the reduction for the two synthetic preparations combined was less than 1/5 (from 92.8 to 75.2 per cent)."

JUNGBLUT, C., J. Exp. Med., 66, 4459-4771 October 1, 1937

Confirming observations made by Szent-Gyorgy, natural vitamin C complex stops capillary fragility while crystalline ascorbic acid fails

In a speech before the Texas Pediatric Society in Dallas in 1937, H. C. Poncher MD, stated he had observed that "*frequently the hemorrhagic manifestations do not stop as promptly with pure ascorbic acid as with citrus fruit juices. The implication appears that possibly the citrus fruits and natural sources of vitamin C may contain something in addition to pure ascorbic acid which is important in the management of scurvy.*"

PROCEEDINGS OF TEXAS PEDIATRIC SOCIETY, 1937

Group receiving crystalline vitamin shows sign of avitaminosis

"The group receiving ascorbic acid seemed to decline in weight much more rapidly and to develop more marked symptoms of avitaminosis than did the controls. This deleterious effect may be attributed to the stimulating action of an excess of vitamin C (ascorbic acid) on the metabolism as has recently been demonstrated by Mosonyi and Rigo. An excess of one vitamin may thus prove decidedly injurious."

GROLLMAN, A., and FIROR, W., JOURNAL OF NUTRITION, 8:572, November, 1934

Cal-Tech MD & Professor of Biochemistry cautions that ascorbic acid fails to cure latent scurvy signs (capillary fragility) but whole food source of C Complex works. Suggests other C Complex factors

"One of the clinical tests for latent (early) scurvy is the measurement of the resistance of the capillaries (microscopic blood vessels) in the skin to rupture when the pressure within them is artificially increased by the application of external pressure. In human scurvy the capillary resistance is low. After crystalline vitamin C (ascorbic acid) became commercially available, it was found in many cases that the capillary resistance could not be increased even by administration of large doses of the crystalline vitamin. On the other hand, lemon juice appears to be effective in improving this condition. One group of workers interprets these findings as evidence that there is another vitamin

which is also important in the prevention and cure of human scurvy. They do not dispute the necessity of vitamin C (ascorbic acid), but their contention is that this other factor, which they call vitamin P, is also essential.

"Little is known at present regarding the properties of or distribution of this postulated vitamin P. It appears to be abundant in lemon juice and it is probably present in other citrus juices. Until the uncertainty regarding the actuality of vitamin P is removed, it is preferable whenever possible to use the natural antiscorbutic foods--the citrus and tomato juices and vegetables--rather than the pure crystalline vitamin."

Borsook, Henry, Ph.D., MD, Professor of Biochemistry, California Institute of Technology. VITAMINS Viking Press. 1941. Pages 109-110.

5. VITAMIN D

Greater Potency of Natural Vitamin:

"Ergosterol and yeast when activated anti-rachitically by ultra violet radiations are inefficient sources of vitamin D for the chicken. Whereas 1% of cod liver oil of average potency resulted in normal bone production, it required from 40-120% cod liver oil equivalence as irradiated ergosterol and from 7.5% to 60% cod liver oil equivalence as yeast to produce the same results."

STEENBOCK, H., KLETZIEN, S., and HALPIN,
J.9 J. Biol. Chem., 97:249, July, 1932

"Vitamin D factor in viosterol and cod liver oil are not identical. Ten times as many vitamin D units in viosterol do not give as much protection as plain cod liver oil."

De SANCTIS, A., and CRAIG, J.,
New York State Medical Journal., 34, 16:712-714, 1934

"A chart taken from the work done by Mellanby indicates that in these studies vitamin D of viosterol was probably less effective than the vitamin D of cod liver oil, in respect to the prevention of caries."

MELLANBY, Medical Research Council, Spec. Report
Series, No. 211, His Majesty's Stationary Office, London,
1936

"A recent report states that the rat unit of natural vitamin D is about 100 times more potent in protecting chickens and children from rickets than the rat unit of irradiated ergosterol."

SUPPLEE, G., ANSBACHER, S., BENDER, R., and
FLINIGAN, G., J. Biol. Chem., 141, 1:957-107, May, 1936

"It is well known that the administration to children of irradiated ergosterol meets with less clinical success than the older therapy of cod liver oil unless the unit dosage of the former is greatly increased over that of the latter."

BUNKER, J., and HARRIS, R., NEW ENGLAND JOURNAL
OF MEDICINE, 211, 25:1141, December 20, 1934

"The point was brought out that the relative effectiveness of the vitamin D of cod liver oil and the vitamin D of irradiated ergosterol varies with experimental conditions. Under the conditions of the present experiment, cod liver oil was fifty times as effective as the rat-equivalent amount of irradiated ergosterol for promoting calcification in the femurs of chickens."

Bills, C., Massengale, O., McDonald, F., And Wirick, AMERICAN JOURNAL OF
BIOLOGY AND CHEMISTRY.,-108, 2:323-330, February, 1935

Natural form of Vitamin D far more potent in much lower dosage

Natural and synthetic Vitamin D are different and natural is more protective

Synthetic vitamin less effective

Natural vitamin D cited as 100 times more potent than synthetic form

Fact that synthetic vitamin D is less potent said to be "well known" in NEJM

Vitamin D in a whole food form cited as 50 times more effective

Synthetic vitamin D exerts greater toxic effect than natural

"In rats, calciferol, the vitamin D of irradiated ergosterol, exerts greater toxic effects at lower levels than does the vitamin D of fish liver oil."

MORGAN, A., KIMMEL, L., and HAWKINS, N., J. Biol. Chem., 120, 1:85-102, August, 1937

Birth defects from synthetic vitamin D noted. Calcification in tissues cited

"Among 90 women who received viosterol and calcium lactate, the placenta showed calcification "beyond normal expectation or experience." Calcification extended into the normal uterine wall in one case. Definite calcification of the kidneys was also noted. *Fetal heads were less moulded, suture lines less distinct and general appearance of ossification or post-maturity was noted. Labors were prolonged.*"

"Among ninety women who received viosterol only, lesser but definite areas of calcification "beyond normal expectation or experience were found. In ninety women who received calcium only and also ninety women who received cod liver oil and calcium lactate the placenta did not show abnormal calcification fetal heads were normally moulded, fontanels were open and sutures not fused. The same was true in two groups of ninety women each who received only cod liver oil or who had a normal diet without viosterol, calcium or cod liver."

Brehm, W., OHIO STATE MEDICAL JOURNAL, 33:990-993, September, 1937, as reviewed by Modern Medicine, p. 62, October., 1937

6. VITAMIN K

Natural Concentrates are Complex in Nature:

"In our experience, concentrates prepared from alfalfa and with a potency of one unit in about 39 micros are *quite complex in composition* and contain several chemical individuals with varying vitamin K potencies, as investigations by several chromatographic analyses on calcium sulfates show. Some of these fractions are deep red, others are yellow, but our most potent concentrates were nearly colorless. It should be noted that our process of isolation is different from that employed by other investigators and this may be one of the reasons why we were able to obtain concentrates which had such a high potency but did not give the typical color reaction for vitamin K."

ANSBACHER, S., FERNHOLZ, E., and Mac-PHILLAMY, H., Proc. Soc. Exptl. Biol. And Med., 42:655-658, November

Natural vitamin K complex in chlorophyll is noted as "quite complex in composition." Not a simple chemical in nature.

7. Natural Vitamins Contain Many Fractions:

"The Nutrition Committee of the National Health and Medical Research Council considered the proposal fully but decided that the addition of synthetic vitamin B1 alone to white flour involves a wrong principle. It is well known that there are many instances in which mixtures occurring in natural products have a more beneficial effect than the administration of the isolated single substances, e. g., in the treatment of pellagra, in which it has been found that, whereas the primary deficiency is of nicotinic-acid, the best results are obtained by the administration of additional members of the vitamin B complex...." Instead, it is recommended strongly that an investigation be made into the

Medical research council calls "enrichment" of flour a "wrong principle." Natural products cited as more beneficial than single substances (pure chemical vitamin).

possible use as additions to the diet of products such as cereal by-products [refined-out impurities], dried milk and other sources of the B complex rather than the use of imported synthetic products, since such by-products would supply other known essentials besides vitamin B I."

JOURNAL OF THE AMERICAN MEDICAL ASSOC.,
Foreign Letters Section, 116, 9:882, March 1, 1941

"It was by no means certain that Yeast extract or an extract of wheat germ which was very rich in vitamin B could be replaced, as far as the B complex was concerned by the synthetic vitamin. Some factors had evidently not yet been identified. Hence the reluctance to depend on other than the natural foods. However, when a mixture of synthetic Vitamins was combined, there was always the fear that some essential factor as yet unidentified, might be left out." (Professor J. Drummond, Scientific Advisor to the Ministry of Food, England).

JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
118, 10:833, March 7, 1942

"In the present observations, these changes took place during a period when the intake of food containing vitamin B was inadequate and were relieved by therapeutic agents (brewers' yeast and liver) known to be rich in vitamin B. Further identification of the substance liver extract responsible for the changes noticed must remain incomplete until various factors now grouped together as vitamin B are identified and separately tested."

ELSON, K., and SAMPLE, Am. J. Clin. Invest., 16:4632 1937

Clinical Deficiency Not of Single Factor:

"Nicotinic acid may aid in the restoration of health but among the pellagrins here described a considerable amount of ill health, such as anemia, underweight, diarrhea, and a few subjective symptoms, persisted."

KOOSER, J., and BLANDENHORN, M., JOURNAL OF
THE AMERICAN MEDICAL ASSOC., 112:2581-2584,
June 24, 1939

"It is obvious that pellagra, as it occurs in human cases, is a multiple deficiency. This seems only reasonable because of the close association of the various components of the B complex in their natural occurrence. It now seems clear from the work of many investigators that complete cure of pellagra will not take place through the administration of nicotinic acid alone, particularly if the deficient diet is maintained."

GORDON, E., and SEVRINGHAUS, E., Vitamin Therapy in
General Practice, The Year Book Publishers, Inc., Chicago, 1940

"Our investigations have shown that definite deficiency of vitamin B1 is not uncommon among hospital patients in England, and we wish to emphasize that vitamin deficiencies in man are almost always multiple and are therefore usually inadequately treated by administration of a single pure substance."

GOODHART R., and SINCLAIR, H., Biol. Chem., 132:11-
21, January, 1940

*Advise against use of synthetic
vitamins in food "enrichment" due to
the loss of the complex synergistic
co-factors*

*Pellagra symptoms persist with
synthetic vitamin B3*

*Crystalline-pure synthetic vitamin,
"it is obvious" does not cure
pellagra.*

*Vitamin deficiencies cited as
multiple and not single chemically
pure deficiencies of single
substances. Only natural
complexes can provide viable
treatment.*

Nerve degeneration of beriberi not a thiamin HCl deficiency, but rather a complex of synergistic co-factors including vitamin B1. Entire B complex urged (known and unknown factors only supplied by complex food forms).

"Clinical conditions presenting a lack of a single dietary constituent are rare. It is more common to encounter multiple deficiency states..... Therapy for deficiency disease therefore usually involves the use of more than a single constituent as the subsequent discussion is intended to show....."

"While a deficiency of thiamin probably still remains the most etiological factor in beriberi, *there is strong evidence to indicate that the nerve degeneration of polyneuritis is due to a lack of some other factor or factors*, possibly riboflavin or pantothenic acid. Until this matter is settled; practical therapeutic measures must involve the known B components, and *special attention should be paid supplying an adequate intake of the entire B complex.*"

GORDON, E., and SEVRINGHAUS, E., VITAMIN THERAPY IN GENERAL PRACTICE, Year-Book Publishers, Inc., Chicago, 1940

Deficiencies cited as "multiple" requiring complexes

The following quotation is taken from a speech made by Russell L. Haden MD, chief of the medical division of the Cleveland Clinic, Cleveland, Ohio, before the International Medical Assembly of the Interstate Post Graduate Medical Association of North America held in St. Louis, October 18-22., 1937. (Published in DRUG TRADE NEWS, October 25, 1937).

"By feeding his patients yeast, Dr. Haden explained, he was able to give them all of the various components of the vitamin B complex.

"The trouble with so many of the deficiency diseases, is that they are multiple," he said, "so what I try to do is to have patients use foods which contain them all or give them extracts that contain several."

8. Toxicity of Synthetic Vitamins:

Science News reports on Dr. A.F. Morgan's experiments with synthetic vitamins on dogs at U of C Berkley. She proved that synthetic vitamins cause worse states of health than pure starvation.

Attention should be given, Dr. Morgan concludes from these experiments, "to the possible danger of the administration of large amounts of certain vitamins such as nicotinic acid to persons subsisting on diets having multiple deficiencies. Fortification of food with those vitamins such as thiamin or nicotinic acid which are available in large quantities may precipitate conditions *worse than the subacute deficiency state produced by the usual diet balanced in its inadequacies.*"

SCIENCE NEWS LETTER, 39, 12:183, March 22, 1941, (Science, March 14, 1941)

Nerve damage from thiamin HCl

"The above case histories would seem to indicate that large doses of vitamin B1 are capable of irritating the peripheral nerve plates. Apparently, this toxic symptom occurs in only a very small percentage of cases treated with massive doses of vitamin B1. However, one should be on guard in the use of this substance." STEINBERG, C. Am. J. Dig. Dis., 5:680-681, December 1938

Sterility occurred in rats given pure crystalline synthetic vitamin B1. Toxic effect noted in lactation form synthetic vitamin.

"(In rats) a daily dose of 100 ug. (gamma) of thiamin results in female sterility in the second. generation. A daily dose of 200 ug. (gamma) of thiamin produces toxic effects in lactation in the third generation. A daily dose of 400 gamma of thiamin results in "entire failure in lactation in the third generation." (Note: This article states that the daily requirement of B1 for rats is 50 ug.) SURE, B., JOURNAL OF NUTRITION, 18, 2:187-194, August 10, 1939

Too much synthetic vitamin B1 confer symptoms of hyperthyroidism

"The symptoms of thiamin overdosing are similar to those of hyperthyroidism: (1) fast pulse, (2) irritability, (3) tremor, (4) weakness. Twenty to forty Mg. should not be used except in deficiency cases."

MILLS C., JOURNAL OF THE AMERICAN MEDICAL ASSOC., May 3, 1941, abstr. in Clinical Medicine, 48, 9:231, September, 1941

Dr. Royal Lee

(circa 1949)



Royal Lee seen working here with his famous Lee Flour Mill built by his own Lee Engineering Co. He designed it so the average family could secure fresh, wholesome, low-heat, stone-ground bread with the vitamin-rich germ and fiber-full bran intact. The Lee Foundation for Nutritional Research and his nutritional company was a lighthouse for physicians and laymen at the time when food adulteration and commercialism swept the 20th Century. He trained thousands of physicians in the principles of organic whole-food nutrition and scientific therapeutic supplementation. He originated theories and applications on nutritional complexes, endocrine and autoimmune diseases, protomorphogens, and biochemical manufacturing processes that are being independently rediscovered fifty years later. Vindicated by the truth, he taught the causes of health while the misguided fought the causes of disease.